NON-PUBLIC?: N
ACCESSION #: 8905110271
LICENSEE EVENT REPORT (LER)

FACILITY NAME: Maine Yankee Atomic Power Company PAGE: 1 OF 2

DOCKET NUMBER: 05000309

TITLE: Plant Trip Due to Inadvertent Actuation of Generator Protective Relaying
EVENT DATE: 04/05/89 LER #: 89-003-00 REPORT DATE: 05/05/89

OPERATING MODE: 7 POWER LEVEL: 100

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR SECTION
50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:
NAME: James M. Taylor, Senior Nuclear Safety
Engineer TELEPHONE: (207)882-6321

COMPONENT FAILURE DESCRIPTION:
CAUSE: SYSTEM: COMPONENT: MANUFACTURER:
REPORTABLE TO NPRDS:

SUPPLEMENTAL REPORT EXPECTED: NO

ABSTRACT:

On April 5, 1989, a plant trip occurred when generator protective relays 86P and 86BU actuated on a loss of load condition to trip the reactor and turbine. The cause of the plant trip was attributed to a Central Maine Power Company (CMP) relay inspector returning a 345 KV breaker failure relay to service. After testing the relay, the inspector did not close the relay input switches before closing the output (trip) switches. With all output switches closed, a charged input cable was reconnected to the relay, causing it to actuate. The relay in turn tripped unit tie breakers which isolated the plant from the grid resulting in the loss of load condition.

All plant systems responded normally to the plant trip.

A caution has been added to the associated CMP Test Instruction ensuring the output (trip) switches are closed last when restoring the relay to service.

END OF ABSTRACT

At 1135 hours on April 5, 1989, a plant trip from 100% power occurred when generator (GEN) protective relays (86) 86P and 86BU actuated. The initiating event was closure of a knife switch (IS) to reconnect an input signal cable (CBL) to 345 KV breaker (BKR) failure relay 50114 (24). An unexpected charge on the cable actuated the relay, sending a breaker failure signal (for 345 KV breaker KG1) to both generator protective relays. 86P and 86BU actuated as designed, sending a trip signal to the main turbine and the reactor.
Post-trip plant parameters were normal and plant systems performed normally.

Electrical breakers, cables, and relaying, for the electrical grid outside Maine Yankee's output disconnect breaker, are maintained by Central Maine Power Company (CMP). Testing of breaker failure relay 50114 was performed by a CMP relay inspector. Successful testing of the relay was complete and the CMP relay inspector was restoring the relay to service by closing knife switches (JS) in the RC/29B2 test block. The trip occurred when the last switch, providing an input signal through terminals 9 and 10, was closed.

The causes of this event were the existence of a charge capable of actuating relay 50114 on the cable to terminal 10 and the switch closing sequence when restoring the relay to service. CMP engineers, investigating while the plant was shutdown, duplicated the initiating events. Test data shows that after being disconnected for 20 minutes, a 25 VDC capacitance charge develops in the lead to terminal 10. The relay has a low actuation threshold of 15.8 VDC. Normally, any small capacitance charge is dissipated through the relay without actuation. But during the relay testing, the cable to terminal 10 is left "floating" between an open trip input contact and the 9/10 knife switch, allowing the charge to build.

If the relay input switches had been closed before the output switches, the relay actuation would not have caused a plant trip. Therefore, a caution has been added to the associated CMP Test Instruction ensuring the output (trip) switches are closed last when restoring the relay to service.

Maine Yankee
RELIABLE ELECTRICITY FOR MAINE SINCE 1972

EDISON DRIVE * AUGUSTA, MAINE 04330 * (207) 622-4868

110 CFR 50.731

May 5, 1989
MN-89-67 GDW-89-160

United States Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D. C. 20555

References: (a) License No. DPR-36 (Docket No. 50-309)

Subject: Maine Yankee Licensee Event Report 89-003-00 - Plant Trip Due to Inadvertent Actuation of Generator Protective Relaying

Gentlemen:

Please find enclosed Maine Yankee Licensee Event Report 89-003-00. This report is submitted in accordance with the requirements of 10 CFR 50.73(a)(2)(iv).

Very truly yours,

MAINE YANKEE
G.D. Whittier, Manager
Nuclear Engineering and Licensing

GDW/BPB

Enclosure

cc: Mr. Richard H. Wessman
Mr. William T. Russell
Mr. Pat Sears
Mr. Cornelius F. Holden
American Nuclear Insurers

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*** END OF DOCUMENT ***